INFLUENCE OF THE RELATION BETWEEN THE PROTECTIVE MEDIUM AND THE MICROBIAL SUSPENSION ON THE VIABILITY OF THE EV VACCINE DURING DRYING AND STORAGE

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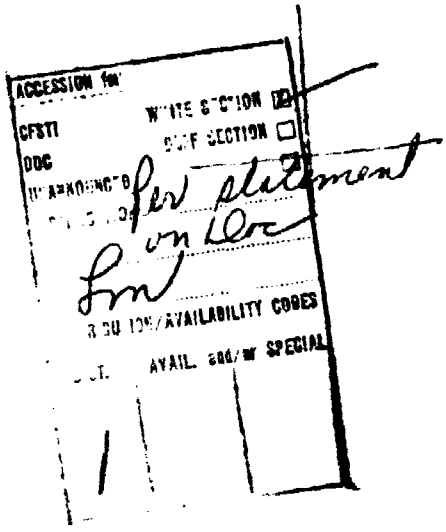

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INFLUENCE OF THE RELATION BETWEEN THE PROTECTIVE MEDIUM AND THE MICROBIAL SUSPENSION ON THE VIABILITY OF THE EV VACCINE DURING DRYING AND STORAGE

[Following is the translation of an article by L. S. Sviridova published in the Russian-language periodical Materialy Nauchnoy Konferentsii po Prirodnoy Ochagovosti i Profilaktike Chumy (Materials from the Scientific Conference on the Natural Focalness and Prophylaxis of Plague) Alma-Ata, Feb., 1963, pages 207--208. Translation performed by Sp/7 Charles T. Ostertag, Jr.]

The existing "Instructions for the Technology of Production of Dry Live Antiplague Vaccine" prescribe that before drying it is necessary to dilute the native suspension of bacteria with a protective medium so that 1 ml of suspension contains 70--80 billion cells (based on the GKI optical standard).

The production of antiplague vaccine by the agar method is carried out with native suspension of high (on an order of 100--220 billion microbes in 1 ml) concentrations, in connection with which significant amounts of protective medium must be added.

The present work was conducted for the purpose of studying the influence of the relationship of the volumes of protective medium and native suspension on the survival rate of the bacteria during the process of drying and storage of the vaccine.

In the test 12 series of vaccine were used. Each test series was tested in three variants:

Variant I -- to three volumes of native suspension one volume of protective medium was added;

Variant II -- to three volumes of native suspension two volumes of protective medium were added;

Variant III -- to three volumes of native suspension three volumes of protective medium were added.

All the variants were checked for survival before drying, immediately after drying, and after seven months of storage at refrigerator temperature.

The following results were obtained (the average results for 12 tests are shown:

Name of indices	Survival rate of bacteria in different variants		
	I	II	III
Survival rate before drying	52%	52%	48%
Survival rate after drying	36%	37%	25%
Survival rate after seven months of storage	25%	20%	16%
Residual humidity (after drying)	3.2%	3.4%	4.6%

These results show that the most significant lowering in the indices of survival was noted for variant III of the tests (by 23% following drying and 32% following prolonged storage, as opposed to the corresponding indices of 15 and 32% for variant II and 16 and 27% for variant I).

This investigation makes it possible to conclude that the dilution of a native suspension of EV antiplague vaccine with large quantities of protective medium lowers the survival rate of the bacteria during the process of drying and the subsequent storage of the vaccine.